Amnioreduction in therapy of advanced twin-twin transfusion syndrome – case report

WITOLD MALINOWSKI, JACEK DYRDULA

Abstract
The authors described a case of monochorionic diamniotic twin gestation complicated with severe TTTS (stage IV). Serial aggressive amnioreduction diminishing the amount of amniotic fluid in a “recipient’s” surroundings was introduced. In addition, tocolytics, glucocorticoids and cardiac glycosides were administered. Such procedures allowed to prolong significantly duration of pregnancy and to deliver both twins alive.

Key words: monochorionic twin gestation, twin-to-twin transfusion syndrome, amnioreduction

Introduction
Twin-to-twin transfusion syndrome (TTTS) is conditioned by the presence of functionally active artery-to-vein junctions between twin circulations in monochorionic placenta, but with lack or insufficiency of compensatory anastomoses (artery to artery or vein to vein) [1]. In this kind of anastomosis, due to significant difference of blood pressure in vessels, flow of blood can be only unidirectional from artery to vein that leads to unbalanced shunting of whole blood from the donor to the recipient. In that case hypotrophia, hypovolemia, hypotonia and anemia develop in the donor and oligohydramnios in his surrounding, whereas hypertrophy, hypertension, hypervolemia, polycythemia develop in the recipient and polyhydramnion (acute in 50%) in amniotic sac.

Quintero et al. [4], on the basis of ultrasonography examinations concerning the natural course of chronic TTTS, suggested 5-stage scale of its advancement:
1) polyhydramnios in the recipient and oligohydramnios in the donor (a stuck twin), the donor’s bladder visible;
2) the donor’s bladder not visible for longer time, lack of flow disorders in the umbilical vessels;
3) absent or reverse end-diastolic flow in the umbilical artery, reverse flow in the ductus venosus during atrial systole or presence of pulsatile umbilical venous flow;
4) fetal hydrops present;
5) intrauterine demise of either fetus.

Case report
Twenty-nine year old multipara GVPV was admitted to department of Obstetric and Gynecological in Hospital in Kutno at 28th week of monochorionic diamniotic twin pregnancy (MCDA), because of the sudden enlargement of abdominal circumference and significantly intense dyspnea. Physical examination showed hyper expanded uterus, with its fundus reaching costal arch. Internal examination: the length of cervix was 2 cm, canal patent for 1.5 finger, lower pole of the amniotic sac indenting into vagina. Ultrasound examination: fetus A with hydrops fetalis (presence of free fluid in abdominal cavity, pleura and pericardial sac) with excessively filled bladder, the size corresponds to 29th week of pregnancy, presumable body mass 1850 g. Maximum vertical pocket of fluid (MVP) was 200 mm. Blood flow in umbilical artery and vein correct. FHR 150/min. Fetus B with empty bladder, lack of amniotic fluids in his surrounding, stuck at the anterior wall (stuck twin), with size corresponding to 26th week of pregnancy, presumable body mass 850 g. Doppler examination showed absence of end-diastolic flow in the umbilical artery with its periodic reversal. FHR 120/min. The TTTS in stage IV was diagnosed.

Due to the lack of the consent of the pregnant to send her to reference center of third stage, she was classified for immediate amnioreduction. The uterine cavity was punctured with needle 18G with local anaesthesia and 2500 ml of clear amniotic fluid was removed (till the maximum vertical pocket of fluid (MVP) of 60 mm was obtained).

The general condition of the pregnant improved significantly. Dyspnea disappeared completely. Tocolytic treatment was introduced, glucocorticoids and cardiac glycosides were given.

The ultrasonography examination taken the next day showed the increase volume of amniotic fluid (MVP 20 mm) in the fetus B and Doppler ultrasound proved the appearance of end-diastolic flow in the umbilical artery.
After four days polyhydramnion was found out in the fetus A again (top amniotic fluid pocket 150 mm). Amniocentesis was performed and 1500 ml of clear amniotic fluid was removed. A consecutive ultrasonography examinations showed slight increase of amniotic fluid in the fetus A surrounding (after seven days maximum vertical pocket of amniotic fluid amounted to 85 mm) and regression of fetal hydrops. In the fetus B the increase of amniotic fluid volume (MVP 35 mm) and the presence of end-diastolic flow in the umbilical artery were found out.

During the 12th day of her stay in hospital, the pregnant discharged herself in good general condition. Readmitted to the obstetric department in 31st week of pregnancy due to the beginning of uterine contraction activity. The tocolytic treatment was introduced, glucocorticoids were administered. After 24 hours clear amniotic fluids were released. The pregnant was qualified to the cesarean section and live twins were delivered, the first one of 1820 g weight, Apgar scores 6/8, Hb – 24 g/dl; the second one of 1100 g weight, Apgar scores 6/8, Hb – 15g/dl. The examination of placenta after delivery showed the presence of monochorionic diamniotic with two artery-to-vein anastomoses and one artery-to-artery anastomose.

The twins were discharged in good general condition on the 20th day of life.

Discussion

Quintero and co-authors [5] claim that even in stage II of TTTS the treatment with serial amnioreductions is aimless, as they did not receive positive results in any of the examined cases. They suggest to treat TTTS only with laser obliteration of placental anastomoses. The presented case shows that in the situation in which laser treatment cannot be performed, serial amnioreductions even in stage IV of TTTS allows to lengthen duration of pregnancy and come to an end delivering two alive twins.

References


Malinowski Witold
Chair of Obstetric and Gynecology Nursing
Pomeranian Medical University
Zołnierska 48, 71-210 Szczecin, Poland
e-mail: witold05@op.pl